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Holistic Evaluation of Multi-Biometric Systems

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- Ceilings on performance accuracy, population coverage, relatively high failure-to-enroll rates, and ease of circumvention are traditional shortfalls of uni-modal biometric systems which often lead to the adoption of multi-biometric systems

- The trend toward multi-biometric systems has been particularly prevalent in the USG (i.e. DHS IDENT, FBI NGI, DoD ABIS)

- The increase in the quantity of multi-biometric systems (particularly large scale) escalates the importance of having suitable means for evaluation

Historical Basis of Evaluation

- Historically, multi-biometric systems have aimed at increasing the extent in requirements associated with 4 of the original 7 characteristics of a biometric system were met
- Technology may now afford improvements across all 7 characteristics, but can we look at more?

Characteristic
1 Universality
2 Uniqueness
3 Permanence
4 Measurability
5 Performance
6 Acceptability
7 Circumvention

An Increased Level of Granularity

- Building upon the original 7 characteristics, we increase the level of granularity and propose 9 more
- The foundation of a holistic evaluation scheme can be achieved through quantification and the application of an objective function
- **Come see more and provide your thoughts at the poster session!**

Characteristics			
1	Acceptability	9	Legality
2	Accuracy	10	Measurability
3	Availability	11	Mobility
4	Circumvention	12	Permanence
5	Convenience	13	Privacy
6	Cost	14	Scalability
7	Efficiency	15	Uniqueness
8	Interoperability	16	Universality